Journal Of Health Science Community
ISSN: 2714 7789 (print) – 2745 3561 (online)
DOI : https://doi.org/10.30994/jhsc.v7i1.380
Vol. 7 No. 4 August 2026 , Pages 55-60

Family Support as a Factor Associated with Diabetes Mellitus Prevention Behavior among Adolescents at SMPN 1 Banyakan

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ABSTRACT
Diabetes mellitus is a non-communicable disease whose prevalence continues to increase, including among adolescents. Lifestyle changes, such as consumption of foods high in sugar and fat, lack of physical activity, and the increasing incidence of overweight, can increase the risk of diabetes from an early age. Family support is an important factor in developing healthy lifestyle behaviors as an effort to prevent diabetes in adolescents. This study aims to analyze the relationship between family support and diabetes mellitus prevention behaviors in adolescents at SMPN 1 Banyakan, Kediri Regency. The study used a quantitative design with a cross-sectional approach. A total of 147 seventh-grade students were selected as respondents using a proportional random sampling technique. Data were collected through questionnaires and analyzed using the Spearman Rank test. The results showed a significant relationship between family support and diabetes mellitus prevention behaviors in adolescents with a p-value = 0.001 and a correlation coefficient (r) = 0.281. These findings indicate that the better the support provided by the family, the better the diabetes prevention behaviors carried out by adolescents. Therefore, strengthening the role of the family through education and habituation of healthy lifestyle behaviors needs to be optimized as a strategy for preventing diabetes mellitus from adolescence.

Keywords: Adolescents, Diabetes Mellitus, Family Support, Non-Communicable Diseases, Preventive Behavior.

INTRODUCTION

Diabetes mellitus (DM) is a non-communicable disease that is a major public health challenge worldwide. The International Diabetes Federation (IDF) reports that by 2025, there will be approximately 589 million adults aged 20–79 years living with diabetes, and this number is projected to increase to more than 850 million by 2050 if prevention efforts are not optimally implemented (Federation, 2025). Therefore, diabetes prevention is an important strategy to suppress the increase in cases in the future.

The increase in diabetes risk factors is not only occurring in adults, but is also starting to be experienced by children and adolescents due to changes in unhealthy lifestyles. The habit of consuming foods and drinks high in sugar, lack of physical activity, and increased sedentary behavior can increase the risk of overweight and obesity associated with type 2 diabetes mellitus. Therefore, the American Diabetes Association (2025) emphasized that diabetes prevention needs to be carried out from adolescence through the implementation of a healthy lifestyle (Committee, 2025). In line with this, the Ministry of Health of the Republic of Indonesia (2024) also encourages the implementation of a balanced nutritional diet, sufficient physical activity, and weight control from school age as an effort to prevent diabetes (Indonesia, 2024).

Family support is a crucial factor in developing diabetes-preventive behaviors in adolescents. As the closest environment, the family plays a role in shaping eating habits, physical activity, and a healthy lifestyle. The American Diabetes Association (2025) states that family involvement is a crucial component in successfully implementing a healthy lifestyle in children and adolescents (Committee, 2025). Family support, encompassing emotional, informational, instrumental, and rewarding aspects, can increase adolescents' motivation to adopt healthy lifestyle behaviors, such as maintaining a healthy diet, increasing physical activity, and controlling weight as efforts to prevent diabetes mellitus.

The role of the family in supporting health behavior has been widely demonstrated through various studies. Family support can help increase adherence to healthy eating patterns, physical activity, and other health habits (Mayberry & Osborn, 2012). Family involvement in health interventions can strengthen adolescents' ability to manage their health, improve collaborative relationships between parents and children, and support quality of life (Ispriantari et al., 2023). The relationship between family support and increased self-care behavior (Busebaia et al., 2023). Meanwhile, some explain that family involvement can encourage the implementation of healthy lifestyles in adolescents at risk of diabetes (Santos et al., 2022). The results of these studies indicate that families have an important role in forming healthy habits, both as part of diabetes management and as a preventative measure from adolescence..

Previous research has shown that family involvement plays a role in supporting adolescents' health behaviors. A family-based approach can enhance parent-child collaboration in health management (Laffel et al., 2003). Interventions involving families have a positive impact on adolescents' adherence to health behaviors (Hood et al., 2010). Furthermore, some studies have shown that parental psychological support influences children's ability to maintain healthy lifestyles (Whittemore et al., 2010), while others have found that the quality of family support is related to the psychological well-being of adolescents living with diabetes (Hagger et al., 2016). Families play a crucial role in the health management of children and adolescents with diabetes (Chiang et al., 2018).

Although various studies have discussed the importance of family support, most have focused on diabetes patients, with outcomes such as self-care, self-management, therapy adherence, and disease control. Research on the relationship between family support and diabetes mellitus prevention behaviors in healthy adolescents, particularly junior high school students, remains limited. Furthermore, similar research has been limited in Kediri Regency, specifically in SMPN 1 Banyakan. SMPN 1 Banyakan was chosen as the research location because it represents a group of young adolescents who are in the process of developing healthy lifestyle behaviors. Based on initial identification, overweight and obesity are still found in students, which are risk factors for type 2 diabetes mellitus. Therefore, strengthening family support is necessary as a promotive and preventive effort to establish healthy lifestyle behaviors from school age.

This study is novel because it examines family support as a factor associated with diabetes mellitus prevention behavior in healthy adolescents, not in diabetic patients as most previous studies have. Family support is expected to help adolescents adopt healthy eating patterns, increase physical activity, and reduce diabetes risk factors. This study used a quantitative approach with a cross-sectional design on 147 seventh-grade students of SMPN 1 Banyakan, Kediri Regency. Data collection was conducted using a questionnaire that had been tested for validity and reliability, while correlation analysis was conducted using the Spearman Rank test. This study aims to analyze the relationship between family support and diabetes mellitus prevention behavior in adolescents at SMPN 1 Banyakan, Kediri Regency and is

expected to become the basis for developing family-based health promotion programs in schools and community health centers.

METHODS

This study used an analytical quantitative design with a cross-sectional approach. This design was chosen because this study aims to analyze the relationship between the independent variable, namely family support, with the dependent variable, namely diabetes prevention behavior in adolescents. Measurements of all variables were carried out simultaneously so that it can describe the relationship between variables based on the conditions of the respondents during the study. This study was conducted at SMP Negeri 1 Banyakan, Kediri Regency on April 21, 2026. This study has obtained ethical approval from the Health Research Ethics Committee of Strada Indonesia University with number: 0523438/EC/KEPK/I/04/2026. The population in this study were all 231 7th grade students of SMP Negeri 1 Banyakan in the 2025/2026 academic year. Junior high school-aged students are a strategic group for implementing diabetes prevention programs because schools are an effective environment in forming healthy eating habits, physical activity, and sustainable healthy lifestyle behaviors (The HEALTHY Study, 2010). Sampling was carried out using a cluster sampling technique, with the class as the sample group unit. Classes were selected through random sampling from all available seventh-grade classes. Based on these results, five classes were selected as sample classes: VII-A, VII-B, VII-C, VII-E, and VII-F, with a total of 147 respondents.

The research instrument used was a structured questionnaire consisting of two research variables: family support and diabetes prevention behavior. The questionnaire was developed based on relevant theory and previous research. The instrument's reliability was tested using Cronbach's Alpha on 39 statements, which were found to be valid based on a pilot test on 30 students at SMPN 1 Grogol with characteristics similar to the study respondents. The test results showed a Cronbach's Alpha value of 0.876 (>0.70), thus the instrument was deemed reliable and appropriate for use in measuring family support and diabetes prevention behavior in adolescents at SMPN 1 Banyakan. The collected data were processed through editing, coding, entry, and cleaning. Family support was measured using a 4-point Likert scale, while diabetes prevention behavior was measured using a 4-point frequency scale. Scores for each variable were categorized as good (76–100%), sufficient (56–75%), and poor (<56%). Data analysis included univariate analysis to describe respondent characteristics and variable distribution, and bivariate analysis using Spearman's rank sum test with a significance level of $p < 0.05$ to determine the relationship between family support and diabetes mellitus.

RESULTS AND DISCUSSION

The study was conducted among seventh-grade students at SMP Negeri 1 Banyakan, Kediri Regency, involving 147 respondents. The results are presented based on the distribution of family support and diabetes mellitus prevention behavior variables, followed by the analysis of the relationship between these variables.

Table 1 : Respondent Characteristics

Category	**Frequency (F)**	**Percentage (%)**
Jenis Kelamin		
Laki-Laki	80	54.4
Perempuan	67	45.6
Total	**147**	**100.0**
Usia Respondent		

12 Years	3	2.0
13 Years	101	68.7
14 Years	40	27.2
15 Years	3	2.0
Total	**147**	**100.0**
Kelas Respondent		
VII A	30	20.4
VII B	30	20.4
VII C	28	19.0
VII E	30	20.4
VII F	29	19.7
Total	**147**	**100.0**

Based on the characteristics of the respondents, this study involved 147 seventh-grade students of SMPN 1 Banyakan. The respondents were dominated by males (80 students) (54.4%), while females (67 students) were 67. The majority of respondents were 13 years old, namely 101 students (68.7%), followed by 14-year-olds (40 students) (27.2%), while 12-year-olds and 15-year-olds each had 3 students (2.0%). The distribution of respondents in each class was relatively even, with the largest number coming from classes VII A, VII B, and VII E, each with 30 students (20.4%), followed by class VII F with 29 students (19.7%) and VII C with 28 students (19.0%).

Table 2 : Distribution of Research Variables

Variabel	Category	Frequency (F)	Percentage (%)
Dukungan Keluarga	Kurang	7	4,8
	Cukup	108	73,5
	Baik	32	21,8
Perilaku Pencegahan Diabetes Melitus	Kurang	17	11,6
	Cukup	118	80,3
	Baik	12	8,2

Based on the table, it can be seen that the majority of respondents have family support in the sufficient category as many as 108 respondents (73.5%), followed by the good category as many as 32 respondents (21.8%) and the insufficient category as many as 7 respondents (4.8%). Meanwhile, in the diabetes mellitus prevention behavior variable, the majority of respondents are in the sufficient category as many as 118 respondents (80.3%), the insufficient category as many as 17 respondents (11.6%), and the good category as many as 12 respondents (8.2%). These results indicate that the majority of adolescents have received family support and implemented diabetes mellitus prevention behaviors in the sufficient category.

Table 3 : Correlation Test Results

Variabel	**Correlation Coefficient**	**P-Value**	**N**
Dukungan Keluarga Dengan Perilaku Pencegahan Diabetes Melitus	0,281	0,001	147

Based on the Spearman Rank correlation test, a correlation coefficient of 0.281 was obtained with a p-value of 0.001 ($p<0.05$). These results indicate a significant relationship between

family support and diabetes mellitus prevention behavior in adolescents. A positive correlation indicates that the better the family support received by adolescents, the better their diabetes mellitus prevention behavior.

DISCUSSION

Based on the results of the analysis using the Spearman Rank test, it was found that family support has a significant relationship with diabetes mellitus prevention behavior in adolescents at SMPN 1 Banyakan. A significance value of 0.001 ($p<0.05$) indicates a relationship between variables, while the correlation coefficient value of 0.281 indicates that the relationship is positive with a low level of strength. This indicates that increased family support tends to be followed by an increase in diabetes mellitus prevention behavior, although family support is not the only factor determining adolescent health behavior. Individual behavior is formed through a reciprocal relationship between personal factors, the environment, and actions taken (Bandura & Albert, 1986). In this study, the family is the closest environment that plays a role in providing examples, building habits, and guiding adolescents to adopt a healthy lifestyle. Support in the form of attention, information, tangible assistance, and appreciation can strengthen an individual's ability to maintain healthy behavior (House & S., 1981). Family involvement is associated with increased diabetes prevention behavior through the implementation of healthy eating patterns and physical activity (Firmansyah et al., 2025).

Family support can encourage adolescents to adopt healthier lifestyle habits. However, the low level of correlation in this study indicates that diabetes mellitus prevention behavior is influenced by various factors, such as health knowledge, individual motivation, peer influence, school environment, and ease of access to health information (Suci et al., 2023). Therefore, family support remains an important component in shaping adolescent health behavior, but needs to be strengthened through collaboration with schools and health workers so that diabetes mellitus prevention efforts can run more optimally.

CONCLUSION

This study shows a significant relationship between family support and diabetes mellitus prevention behavior in adolescents at SMPN 1 Banyakan. Better family support tends to be followed by better diabetes mellitus prevention behavior. However, the low strength of the relationship suggests that diabetes prevention behavior in adolescents is influenced not only by family support but also by other factors outside the study.

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